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Implications of monetary variables to investment and economic growth

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ABSTRACT. The purpose of this study is to analyze and test the Implications of the monetary variable to investment and economic growth.The purpose of this study is expected which one among monetary variables give more significanteffects Indicated on the economic growth either directly or indirectly, beside that be able to provide input to the others Researchers, and especially in the government that the investment Influences monetary variables and economic growth.
Data Of research collected since 1970 to 2012, is hypothesis testing using *path analysis,* a model of a relationship structure that provides roommates forms and explain the causality among selected factors. The result of this study Showed that interest rate has a direct,negative and significant effects on the economic growth, while the exchange rate hasinfluence on investment significantly. Beside that the exchange rate has a direct and indirect impact on economic growth
The conclusion is that the exchange rate is one of the important instruments that can be used to improve economic growth

Key Words: Variable Monetary, Investment, Economic Growth

CHAPTER 1
INTRODUCTION

In many developing countries generally have high levels of welfare of the population is still relatively low, economic growth is needed to catch up to the economy of the industrialized countries. The weak ability of private sector participation in economic development requires the government to take a role as a driving force of national economic development.

Economic development of a country is generally more oriented macroeconomic, because the implications of macroeconomic variables effect faster when compared to the others. The most important macroeconomic variable is the gross domestic product (Mankiw, 2003:40).

Indonesia is currently seeking to improve economic growth and recovery after the economic crisis since mid-1997. Plus the globalization which could also pose a threat to developing countries that has relatively fixes the many flaws in the economic sector, both in terms of capital, human resources and technology mastery. Gradually sought monetary conditions should continue to be more stable, it will work well if the socio-political development in the country that is running a conducive, with the condition is expected to provide an opportunity for investors to invest in Indonesia, with increased investment will increase economic growth (Samuelson, 2004: 137-143).

Indonesia downfall in the protracted economic crisis, one due to the inability of the government to restore the pre-crisis level of investment in 1997, although the government has enforce Law No. 1 of 1967 Jo No 11 of 1970 on Foreign Direct Investment (FDI) and Law No. 6 Years 1968 Jo No 12 Year 1978 on Domestic Investment (DCI).

Table 1.1
DEVELOPMENT INVESTMENT AGREEMENT
IN INDONESIA FROM 1997 UNTIL 2003

Year	Domestic Investment		Foreign Investment	
	Project (Unit)	Value (IDR Billion)	Project (Unit)	Value (IDR Billion)
1997	723	119,877.2	781	299,929.58
1998	327	57973.6	1,034	412,813.4
1999	237	53540.7	1,177	559,136.3
2000	392	93897.1	1,541	1081250.9
2001	264	58 816	1,334	534 020
2002	188	25230.5	1,151	635,944.5
2003	181	48484.8	1,024	385,983.2

Source: BKPM, 2010

There are several factors that cause the investment do not run as expected-both factor that comes from economic and non-economic factors. Non-economic factors can include political conditions, security factors and factors of existing policy bureaucracy, economic factors are such as interest rates (Mankiw, 2003:453), inflation and the exchange rate (Bodie et al., 2003:852).

Selection of monetary policy as one of the steps that can be done to attract investment in order to recover economic growth is considered more effective when

compared with other policies, such as fiscal policy, fiscal policy needs for a long time, in addition to the effects of monetary policy approaches give faster effects.

Monetary policy is an alternative macroeconomic policy options that have the purpose to influence aggregate economic activity in the economy. Such activities as increased *Gross Domestic Product* (GDP), controlling inflation, interest rates and balance of Balance of International Payments and International trade increased in the foreign exchange reserve (Sicat and Arnadt, 1991: 254).

Movements in interest rates has a extremely important role in maintaining conditions of other monetary indicators, namely the influence of interest rates on investment, when low interest rates will stimulate investment growth, with an increase in investment will increase the gross domestic product (GDP), and if this can continue again it will boost economic growth there (Adam, 2009).

In addition, the movement of the rupiah against the U.S. dollar after the implementation of the policy of floating exchange rate system *(floating exchange rate)* in Indonesia on August 14, 1998, which has affected the development of the national economy both in the monetary sector and the real sector.

Many factors, both economic and non-economic, that could be the cause of the exchange rate turbulence. The value of the rupiah against foreign currencies especially the U.S. dollar will affect the influx of investors, with the appreciation of the rupiah against the dollar it will change the economic conditions, which in turn will lower the value of the investment (Campbell et al., 2003).

CHAPTER 2
LITERATURE REVIEW

Monetary policy is not something that stands alone, but there are variables in the interdependence of the various economic activities. On the one hand, monetary policy is heavily influenced by various factors in the economy, on the other hand direct monetary policy also affects the monetary and financial conditions that will in turn had an impact on the real sector.

Monetary policy is a policy that has been established and implemented by Bank Indonesia to achieve and maintain rupiah stability which is conducted through the control of money supply and or interest rates. In a closed economy in a country, then the country's economy is no interaction with other economies, the monetary policy implemented will be simpler.

Based on some of the policy options of monetary policy is an alternative macroeconomic policy options in the field of monetary purposeful affect aggregate economic activity in the economy such as the increase in *Gross Domestic Product* (GDP), controlling inflation, interest rates and balance of Balance of International Payments and increased reserves foreign exchange in International Trade (Sicat and Arndt, 1991:254)

In essence, monetary policy is an integral macro policies aimed at supporting the achievement of various targets end economic development, which generally include economic growth, expansion of employment, price stability, and balance of balance sheet of payments. Compared to developed countries, the implementation of monetary policy in developing countries demanded a greater role (Pohan, 2008:3).

2.1 Interest rate

The interest rate is one of the most widely observed variable in the economy. Almost every day the movement was reported in the newspapers. This is due to the interest rate directly affecting our lives and has important consequences for the health of the economy.

The classical view that the size of the investment is dependent on the size of the interest rate *(r)*. So if the interest rate is high then the investment will be smaller, whereas if the interest rate is low, the level of investment will be higher. So based on this view, the investment is a function of the interest rate:

$$I = f (r) \quad \text{……...…….2.36}$$

In the short term, then the function of the investment is as follows: $= I_o - er$, where (e) bearing the negative, because the inverse relationship between investment value and interest rate. The relationship between the interest rate with the investment when depicted in the form of curves can be described as below:

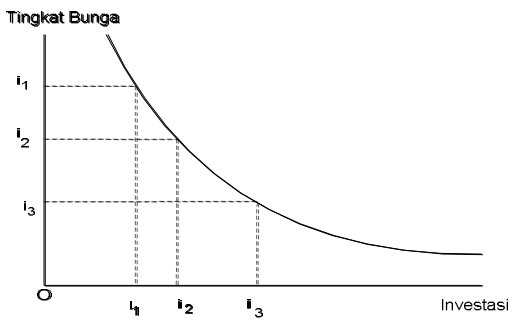


Figure 2.8

DRAWING INTEREST RATE AND INVESTMENT RELATIONS

Sources: Putong, 2009:337

2.2 Impact of Interest Rate on Investment

Economists study fluctuations in investment to understand the *economy's output* of goods and services better. The models *IS – LM* is based on a simple investment function relating investment to real interest rate: I = I (r). This function states that the rise in the real interest rate reduces investment.

There *are three* types of investment spending, *first:* business fixed investment *(business fixed investment)* includes equipment and structures that are purchased by a company for production, *second:* redential investment *(redential investment)* includes the purchase of new homes for shelter and landlords purchased for leased, *third:* inventory investment *(inventory investment)* includes goods stored in the warehouse company, including materials and supplies, work in process, and finished goods (Mankiw, 2003:453)

Research conducted by Chetty (2006), concluded that the effect of interest rates on investment is negative, meaning that if there is rise in interest rates there will be a decline in the value of investments.

2.2 Impact of Inflation on Investment

Before deciding to invest, it should be realized that the conventional theory of investment depends on the nominal interest rate is offered. So the offer could be accepted if the inflation rate as expected (Bodie et al., 2003:141)

$$r \approx R - I$$

Fisher equation states that the nominal interest rate i equal to the real interest rate i_r plus the expected inflation rate π^e :

$$i = i_r + \pi^e$$

$$i_r = i - \pi^e$$

Based on these equations can be explained that the increase of inflation will increase the existing rate. Gillmant, Max and Michal Kejak (2009), concluded that the

relationship between inflation and investment is negative, meaning that if there is rise in the inflation rate, there will be a decrease in the value of investments and vice versa, when a decline in the inflation rate, there will be an increase in the value of investments.

2.4 Money Exchange

One of the things that mark the movement of the spread of globalization the world is more free market, trade barriers began to decrease, and increasingly insignificant. Cross-border transactions are relatively easy and not uncommon, thus increasing the volume of international trade.

Along with the increase in international trade, foreign currency exchange. Foreign currency exchanges are also always changing. Many things affect these changes, such as inflation rates, income levels, interest rates, government control over the economy, including expectations or estimates regarding the economic conditions in the future will also affect changes in currency exchange rates (Madura , 1997:108-114).

Resultsabove push for the application of law of one price at which the trade of goods and services, including other commodities between countries must have a transaction fee equal value in the whole world. Therefore, the exchange rate between the domestic currency and domestic commodities must be equal to the exchange rate between the domestic currencies with foreign commodities, in other words, one unit of currency in the country should have the same value of purchasing power around the world. (Salvatore, 1997:44).

2.5.Impact of Exchange Rate on Investment

According to Bodie et al. (2003:852-857) investment from abroad (Foreign Investment) has the risk of exchange rate. The return of dollars of foreign investment depends not only on the return of foreign currency, but also on the exchange rate between the foreign currencies with the domestic currency. Thus foreign investment is depending on the exchange rate between foreign currencies (U $) in local currency (IDR). This theory is called the theory of *Interest Rate Parity, Interest Rate Parity* equation theory that there can be described below (Bodie et al., 2003:750):

$$F_0 = E_0 \left(\frac{1+r_{rp}}{1+r_{dolar}} \right)^T$$

in which:

E_0 is the currency exchange rate between two currencies

F_0 is the price in future
r is the interest rate
T is the period

Development of the above equation for the exchange rate between two countries as follows (Bodie et al., 2003:854-855):

$$I + r\ (Rp) = (I + r_f\ (dollar))\ E1 / E_o$$

And in general can be written as follows:

$$I + r\ (C) = (1 + r\ (foreign))\ E1 / E_0$$

Results of the study presented by Nucci, 2001, the effect of exchange rate on investment is positive, meaning that if there is rise in the exchange rate of the local currency against foreign currencies, there will be increase in the value of investments, and vice versa when a decline in the exchange rate there will be a decline in the value of investments.

2.6 Investment and Economic Growth

Keynes raised the possibility that the saving and investment can be developed separately, creating a business circles. In modern society, saving and investing is done by two different groups. Saving is “negative action for controlling expenses, while the investment is “positive action to start or maintain a production process. Interest rates not “automatic mechanism” which unites both (savings and investment), both of which can get out of line and savings can be ‘abortive”. If investment exceeds savings, to boom of economy; when saving exceeds investment, what happens is decreased (Skousen ,2009:421-422)

Capital and investment have different meanings, capital or capital according to Case, 2004:216 is: “Those goods produced by the economic systemthat are used as input to produce other goods and service in the future, physicalcapital, social capital, and human capital intangible capital”.

All goods produced by the economic system and are used as inputs for the production of goods and services in the future. The type of capital can be either physical capital, social capital or human capital.

According Suparmoko (1982:98) of capital are all forms of wealth that can be used directly or indirectly in the production to increase output, or goods that are made to

production development in the future. Include investment of capital which can be factory, human capital and expertise.

Investing in macroeconomics is the current expenditure that adds to the stock of physical capital, or the amount spent to increase the business sector capital stock in a given period. Factors affecting investment is the interest rate, taxes and output some future period (Dornbush, 2004:336). Furthermore by Case (2004:217) also explained also that the additional capital investment is where the company is said to be capital stock (capital New addition to a firm's capital stock), or additional funds that cause an increase in capital (Flow that increase of the stock of capital).

2.7 Economic Growth

Economic growth is determined by the amount and quality of resources and the development of technology. Economic growth refers to the increase in the occurrence of symptoms or the result of an increase in *output* is measured by input. Increase the accumulation of results or increase the efficiency of the overall economic units as a result of the production process during a certain time period, a rate of economic growth. Economic growth is shown in two ways, namely GDP from year to year and the increase in income per capita (Spencer, 1975: 285-286).

Economic growth is the result of various economic activities, for example, consumption, production and investment as well as domestic and foreign trade. Investment is one of the economic activities that can promote or improve economic growth, both in industrialized countries and in developing countries, including Indonesia.

One of the great impact and continues today is the growth model developed by Harrod and Domar in Todaro (2004:129-130). Essentially this model rests on the view of Keynes (1936) who emphasized the importance of encouraging the growth of demand in the long term. In the Harrod-Domar model, economic growth is determined by two basic elements, namely the level of savings (investment) and capital productivity *(capital output ratio).* Order to grow sustainably, people must have an economy that is a source of investment savings. The greater the savings, which means greater investment, economic growth is higher. Conversely, the lower the productivity of capital or the higher *capital output ratio*, the lower economic growth.

Harrod-Domar theory in principle seek to show necessary requirements for growth to be steady *(steady growth)*, which is defined as growth that will always create fully use of capital equipment, will always prevail in the economy (Sukirno, 2008:450)

In the Harrod-Domar theory, capital formation is seen as an expense that will increase the ability of an economy to produce goods, as well as the expenditure that will increase the effective demand for the entire community. If the production capacity increases, the new national income will increase and if the increased public spending, then economic growth will be created.

Models of Harrod-Domar growth as follows:

$$\Delta Y/Y = s/k \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 2.40$$

Based on the Harrod-Domar equation is clearly stated that the GDP growth rate ($\Delta Y / Y$) is determined jointly by National Savings Ratio (s), as well as the national *capital-output* ratio (k). More specifically, the equation states that the rate of growth of national income will be directly or positively proportional to the negative savings ratio and inversely to the capital-output ratio of the economy (Todaro, 2004:131)

2.6.3.Investment Impact on Economic Growth

There are several kinds of investments are recognized *first:* Business fixed investment that includes structures and equipment purchased by the company, *the second:* Investment Inventory includes items that are placed in warehouse such as, equipment materials, semi-finished goods and finished goods, *third:* Housing Investment which includes new housing purchased for occupancy and purchased by investors for rental (Putong, 2009:336-337)

Traditional neo-classical growth theory argued on the belief that liberalization (opening) of national markets will stimulate investment, both domestic investment and foreign investment, so that by itself would boost the level of capital accumulation. If it is measured by the unit growth rate of GNP, it is the same with the addition of the domestic savings rate, which in turn will increase the capital-labor ratio and a per capita income of developing countries, are generally poor capital.

Theory of growth that contributes to the neoclassical growth theory is Solow neoclassical growth model, so that the originator of this theory Robert Solow was awarded the Nobel Prize in Economics. This theory is essentially a development of the Harrod-Domar formulation by adding a second factor, namely labor, as well as

introducing a third independent variable, namely technology, into the growth equation . Difference of both theories is the Harrod-Domar model that assumes fixed returns to scale *(constant returns to scale)* with raw coefficients, Solow Neoclassical Growth Model is holding on to the concept of returns to scale are steadily decreasing *(diminishing returns)* of *inputs* of labor and capital if they are analyzed separately; when both are analyzed simultaneously or at the same time , Solow also use fixed returns to scale assumption.

Solow neoclassical growth model using a standard aggregate production function, namely:

$$Y = K^{\propto}(AL)^{1-\propto}$$

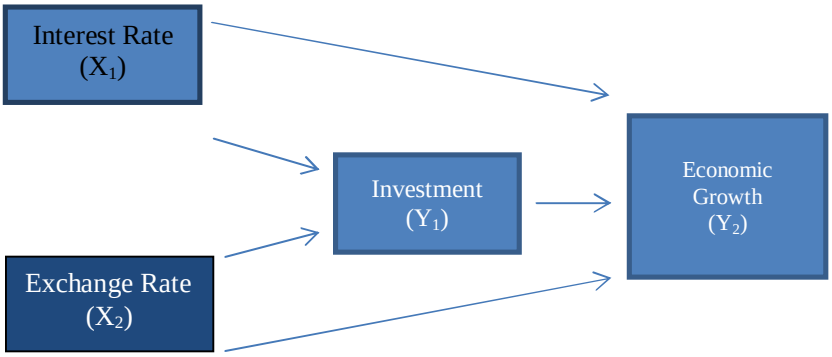
Where:

Y is Gross domestic product
K is stock of physical capital and human capital
L is labor
A is lalabor productivity, the growth is determined exogenously

Conceptual Framework

Preparation of the conceptual framework will provide significant input in determining the existing hypothesis, however, prior to the preparation of the conceptual framework first made the process of thinking. Thinking process framework in this study is the theory of the money supply, inflation theory, the theory of interest rates, exchange rates and investment theory and the theory of economic growth.

Thinking process framework is intended to provide guidance through deductive reasoning theories and concepts that already exist, and provides guidance to broaden the inductive analysis through empirical studies. In the study of the theory, and the relationship of symptoms presented in the empirical study is explained on the basis of a framework for thinking about cause and effect as a measure to control the activities so that the desired results can be achieved.



Research Hypothesis

Based on the background, the formulation of the problem, the study of theory and previous research the hypothesis is formulated as follows:

1. Interest rate has significant effect on economic growth
2. Interest rate has significant effect on investment
3. Exchange Rate has significant effect on economic growth
4. Exchange Rate has significant effect on investmen
5. Investment has significant effect on economic growth

CHAPTER III
RESEARCH METHODOLOGY

Research design

Based approach is usedthis study belongs to the type of quantitative research; because research departs from theory to analyze the influence between variables that are *observed* through a deductive approach (Wan Usman, 2009:4). Besides, this study also wants to analyze and examine the relationship between exogenous variables with endogenous variable in the regression model structural equation so this study also belong to the kind of explanatory research (Sarmanu, 2009:8) and including causal role in this type of research (Kuncoro, 2003:10)

Research Data

The data will be used in this study is a secondary data collected from several agencies, institutions, agencies and official institutions, such as the Central Bureau of Statistics, Bank Indonesia and from IFS *(international financial statistic).*

Data available after collected, researched, and discussed with the competent authorities in each agency in data sources was obtained. Once the data is correct, then the data will be processed in accordance with the method of this study.

Data Analysis Techniques

Relationships are analyzed in this study is the relationship between *exogenous variables* (inflation and exchange rate) with *intervening endogenous variable* (investment) and *the dependent endogenous variable* (economic growth), in which the endogenous variables of this equation can be other*exsogenvariables.*

Research studies using *time series* data often raise the problem of stationary data used in the study. The issues need to be considered because of the use of stationary variables will result in regression of false or spurious regression. Spurious regression occurs when the regression results show a significant relationship between variables but the results do not have the economic sense. Therefore prior the data regression performed stationary test.

Before performing regression analysis using *time series data*, several tests need to be done classic of all variables first, and then to determine whether the variable is stationary or not the stationary test is necessary.*Stationary* test is necessary because macroeconomic variables in general are *nonstationary.* The *stationary* test purposes that is the *mean*is stable and error random = 0, so that the regression model has the ability obtained are reliable and there are no *spurious* (Maddala, 1992:526)

It also performed the classic assumption test includes normality test, heteroskedastic test (Priyatno, 2010:84)., Auto-correlation test (Kendall, 1971:8) and multicollinearity test (Winarno, 2007:5.7). Analytical tool used in this study by using SPSS Software Version 17.

Form of causality that appears in this study using a model that is not simple, that is the variable dual role as an independent variable in a relationship, but a variable dependent on the other relationship. Such relationships require analysis tools that is able to show simultaneously, for is used path analysis. The model equation is as follows:

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \mu_1$$

$$Y_2 = \delta_0 + \delta_1 X_1 + \beta_2 X_2 + Y_1 + \mu_2$$

in which:

X_1 Is Interest Rate

X_2 is the Exchange Rate

Y_1 is Investment

Y_2 is economic growth

CHAPTER 4
RESULTS AND DISCUSSION

4.1 Analysis of Results

4.1.2 Classical Assumptions Test Results

1.Multicollinearity Test

Multicollinearity test performed on variables of inflation and exchange rate, as this variable is the independent variable that affects partiallyor jointly on investment, the result is as follows:

Table 4.1
RESULTS OF MULTICOLINEARITY

Coefficients[a]

Model	Unstandardized Coefficients		Stad. Coeff.	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	1.909E7	1.920E7		.994	.327		
SKB	-146649.419	687361.610	-.025	-.213	.832	.816	1.226
NTU	15285.390	2142.622	.777	7.134	.000	.978	1.023

a. Dependent Variable: IVST

To see whether there is multicollinearity can be seen from the VIF value of each independent variable. If the VIF value between each of the independent variables is less than 5, it can be concluded that the regression model did not reveal any multicollinearity problems.

Based on the results of tests that have been conducted multicollinearity can be seen in Table 4.1, it appears that the coefficient of each variable under 5. So from the model to be studied, namely inflation, interest rates and exchange rates, themulticollinearity does not occur.

2.Test Heterokedasitic

Heteroskedastic test aims to test whether the regression model of the *variance*occurs inequality of a residual observation to others observation, the results of the heteroskedastic test using the *Test Spearmen's rho* as follows:

Table 5.2
HETEROSKEDASTIC TEST RESULTS

Unstandardized Residual	Correlation Coefficient	1.000
	Sig. (2-tailed)	.
	N	42
SKB	Correlation Coefficient	.018
	Sig. (2-tailed)	.912
	N	42
NTU	Correlation Coefficient	.074
	Sig. (2-tailed)	.656
	N	42

Sources: Appendix 6 page203

Heteroskedasitictest done can be seen in Table 5.4 using the *Test Spearmen's rho*.In this test isconsidered is the significance of the *unstandardized residual* value with the following procedures:

1. $H_{0:}$ there is no heterokedasitic

   $H_{1:}$ there isheteroskedasitic
2. By using $\alpha \pm = 5\%$, reject H_0 P-value $< \alpha$
3. Because of all the variables P-Value> 0.05 then $_{H0}$ is accepted

The conclusion is that the model is being studied with a 95% confidence level there is one variable that has a value below the level of confidence that is a variable of interest rate.

3.Autocorrelation test

Autocorrelation test aims to aims to detect whether in a linear regression model there is correlation between errors of destruction.

Table 5.3
Result autocorrelation test

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.771[a]	.594	.559	4.868E7	1.594

a. Predictors: (Constant), NTU, SKB
b. Dependent Variable: IVST

This method is based on the value of *Durbin-Watson* obtained, from the results of tests conducted in Table 5.3, then withα= 5%, and n = 39 and k = 3, from Table *Durbin-Watson* obtained value dU = 1.658 and dL = 1.328. (Appendix) The value of *Durbin-Watson*obtained 1,594, because its value is between the value of dL and dU, it does not produce definitive conclusions (located in the area of doubt).

4. **Stationary test**

Before the *time series* data processing performed on stage regression, it is necessary to test stationary of all the variables to determine whether the variables are stationary or not. This is necessary because the *time series* data in economics are generally not stationary, so if this is not done then the variables used in the regression will yield false estimates or *spuriousregression.*

The test is performed by using a *unit root* test whether the data contain *unit root* or not.If variables contain *unit root,* then the data is said to be the data that are not stationary.

Full results of the stationary tests that have been done on the variable inflation, exchange rate, and investment and economic growth can be seen below:

1. Stationary Test results on variable of Interst Rate (SKB)

Stationary test results on variable of interest rate can be submitted as follows:

Table 5.4
STATIONARY TEST RESULTS OF INTEREST RATE

Lag	Autocorrelation	Std. error	Box-Ljung Statistic		
			Value	df	Sig
1	-0,317	0,158	4,019	1	0,045
2	-0,437	0,156	11,895	2	0,003

2. Stationary Test results on Exchange Rate (NTU)

Stationary test result on variable exchange rate as below:

Table 5.5

STATIONARY TEST RESULTS OF EXCHANGE RATE

Lag	Autocorrelation	Std. error	Box-Ljung Statistic		
			Value	df	Sig
1	-0,595	0,158	14,173	1	0,000
2	-0,020	0,156	14,190	2	0,001

3. Stationary Test results on Investment (IVST)

stationary test results on Investment variables as below:

Table 5.6

STATIONARY TEST RESULTS ON INVESTMENT IN INDONESIA

Lag	Autocorrelation	Std. error	Box-Ljung Statistic		
			Value	df	Sig
1	-0.549	0,158	12.103	1	0,001
2	0.093	0.156	12.460	2	0,002

4. Stationary Test results on Economic Growth (PTE)

Stationary test result on variable of exchange rate can be delivered as below:

Table 5.7

STATIONARY TEST RESULTS ON ECONOMIC GROWTH

Lag	Autocorrelation	Std. error	Box-Ljung Statistic		
			Value	df	Sig
1	-0.495	0,158	9.811	1	0,002
2	0,021	0.156	0,021	2	0,007

5. Test Results Between Variables

1. Phase 1

Table 5.8
RESULTS ANALYSIS INTEREST RATE,
EXCHANGE RATE ON INVESTMENT

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.907E7	1.895E7		1.007	.321
	SKB	-1036622.479	1162934.121	-.095	-.891	.379
	NTU	15238.962	2103.096	.775	7.246	.000

a. Dependent Variable: IVST

From the results of the regression analysis is performed between the interest rates on investments in Table 5.8 the results obtained with p = 0.379 and the coefficient value of -0.095, the results can be explained that the interest rate does not significantly affect the investment does it mean when a decline in interest rates do not result in significantly to the increase in value of Investment Classics theory that the size of the investment depends on the size of the interest rate.

$$Y_1 = 1.907E7 - 0{,}095\ X_1 + 0{,}775\ X_2 + \mu_1$$

This finding is contrary to research conducted by Chetty (2006), in his study concluded that the effect of interest rates on investment is negative, and meaning that if there is rise in interest rates there will be a decline in the value of investments.

The influence of interest rates on investment occurs because mortgage interest is a component of cost of capital *(cost of capital)* to determination of interest rates is an instrument that can be used directly by the central bank in order to conduct monetary policy, interest rates on both deposits and loans. With the determination of the interest rate the central bank can conduct monetary expansion and contraction as needed.

Although low interest rates will not necessarily be in demand by the public to take a loan to invest, because the perception is influenced also by the bank against the debtor's business prospects, especially because of the debtor's financial condition and

prospects are assessed by the bank is not feasible, but it is also because of the high ratio of debt to capital *(leverage),* the ratio of non-performing loans and the *moral hazard,* as well as the existence of asymmetric information (asymmetric information) between banks and borrowers. Can also be of internal conditions such as banking itself reflected in the capital or *Capital Adequacy Ratio* (CAR), the amount of bad loans or *non-performing loans* (NPL), and *toDeposit Loan Ratio (LDR).*

Changes in economic conditions are increasingly global world, the determination of interest rates as the target ineffective. Besides determining the effectiveness of interest rate will depend on the enforcement of the rules of the regulator, in this case the central bank.

TABLE 5.9
RESULTS ANALYSIS BETWEEN THE INTEREST RATE AND EXCHANGE RATESIMULTANEOUSLY TO INVESTMENT

Model Summary[b]

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.770[a]	.593	.571	4.803E7	.593	26.256	2	36	.000

a. Predictors: (Constant), NTU, SKB

b. Dependent Variable: IVST

Base on the results of the regression analysis is performed between the variable interest rates and exchange rates on investments demonstrate the value of R Square: 0.593, these values show that the effect of the investment is not solely determined by factors economics alone, but is also determined by the no factors economy, such as security, enforcement legal, bureaucratic and regulatory factors

4.1.4.2 Stage 2

Implications between inflation, exchange rate and investment to economic growth as follows:

TABLE 5:10
RESULTS OF REGRESSION ANALYSIS BETWEEN INTEREST RATES, EXCHANGE RATEON INVESTMENT AND ECONOMIC GROWTH

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	295696.574	99448.147		2.973	.005
	SKB	-28708.523	6086.210	-.287	-4.717	.000
	NTU	137.609	17.070	.762	8.061	.000
	IVST	.002	.001	.191	2.036	.049

a. Dependent Variable: PTE

From the results of the regression analysis is performed between the interest rate on investment in Table 5.10 the results obtained with p = 0.000 and the coefficient value of -0.287, the results can be explained that the interest rates have a significant effect on investment does it mean when a decline in interest rates does not result in significantly to the increase in the value of economic growth. Exchange rate was also giving out the significant implications of economic growth with p = 0.000 and 0.762 coefficient values, as well as the investment provide significant implications for economic growth. This suggests that in order to enhance economic growth, the government should provide policy support, such as interest rate have to adapted to the needs of the community, as well as how the government can create a climate conducive to investment so that investors can make investment and will ultimately increase economic growth.

$$Y_2 = 295696.574 - 0{,}287\ X_1 + 0{,}762\ X_2 + 1{,}91\ Y_1 + \mu_2$$

Model Summary[b]

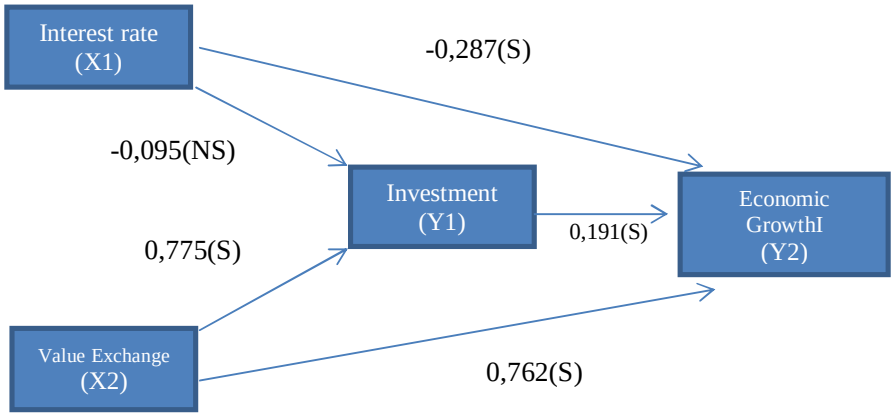
Model	R		Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.935[a]	.874	.864	248641.018	.874	81.271	3	35	.000

a. Predictors: (Constant), IVST, SKB, NTU

b. Dependent Variable: PTE

4.1.5 Total Results

The total result from path analysis has been done can be seen below:



Based on the results of the path analysis conducted can be calculated direct and indirect relationships between variables. Can be broadly explained that:

1. Several direct and indirect influence through Y_1 of X_1 and the total effect on economic growth are described as follows:
   a. The direct effect of variable X_1 to Y_2 with coefficient = - 0287
   So the total effect of X_1 on Y_2 at = - 0.287
   b. Indirect effect of variables X_1 to Y_2 does not exist because there is not a Significant pathway
2. Several direct and indirect influence through Y_1 of X_2 and the total effect on economic growth are described as follows:
   a. The direct effect of X_2 on Y_2 with coefficient = 0.762
   b. Indirect effect of X_2 on Y_2 with coefficient = 0.762+(0.775 x 0.191) = 0.910

So the total effect of X on $Y_{2\,2}$ at = 0.910

3. Result of contributions other models are as follows:
   a. X_1 direct contribution does not significantly to Y_1
   b. X 2 is directly contributing significantlyto Y_1amounted to $0{,}775^2$ = .6006 or 60.06%
   c. Y_1 is directly contributing significantly affect Y_2amounted to 0.191^2 = 0.0364 or 3.64%

d. Contribution of X_1 and X_2 are simultaneously direct influence on Y_1 for R^2_{square} = 0.593 or 59.3%, while the remaining 40.7% is influenced by other factors that cannot be explained in this study.

e. Contribution of X_1, X_2 and Y_1 simultaneously which directly affects the Y_2 for R^2_{square} = 0.935 or 93,5%, while the remaining 6.5% is influenced by other factors that cannot be described in this study

CHAPTER 5
CONCLUSION

Based on the results of path analysis it can be concluded that:

1. Implications of monetary variable interest rates has a significant impactto investment insignificantly and directly to economic growth.
2. Implications of monetary variables the exchange rate hasa significant impactdirectly to investment and alsohas affect indirectly to economic growth through investment
3. Implications of monetary variable interest rates, exchange rates and investment simultaneously have a significant impact on economic growth is quite large, being the monetary variable interest rates and exchange rates simultaneously have considerable influence on investment .

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